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A

DISCOURSE

ON THE

Emigration of Britiſh Birds.

[PRICE ONE SHILLING.]

BRITISH MUSEUM

A

DISCOURSE

ON THE

Emigration of Britiſh Birds:

OR,

This QUESTION at laſt SOLV'D:

Whence come the STORK and the TURTLE, the CRANE and the SWALLOW, when they know and obſerve the appointed Time of their coming?

CONTAINING

A curious, particular, and circumſtantial ACCOUNT of the reſpective Retreats of all thoſe

BIRDS of PASSAGE

Which viſit our Iſland at the Commencement of SPRING, and depart at the Approach of WINTER; as, the

CUCKOW,	The SWALLOW TRIBE,	WHIN-CHAT,
TURTLE,	NIGHTINGALE,	WILLOW-WREN,
STORK,	BLACK-CAP,	WHITE-THROAT,
CRANE,	WHEAT-EAR,	ETOTOLI,
QUAIL	STONE-CHAT,	FLY-CATCHER,
GOAT-SUCKER,		&c. &c.

ALSO,

A copious, entertaining, and ſatisfactory Relation of

WINTER BIRDS of PASSAGE,

Among which are the

WOODCOCK,	FIELDFARE,	ROYSTON CROW,
SNIPE,	RED-WING,	DOTTEREL, &c.

SHEWING

The different Countries to which they retire, the Places where they breed, and how they perform their Annual Emigrations, &c.

With a ſhort Account of thoſe BIRDS, that migrate occaſionally, or only ſhift their Quarters at certain Seaſons of the Year.

To which are added,

REFLECTIONS on that truly admirable and wonderful Inſtinct, the ANNUAL MIGRATION of BIRDS!

By a NATURALIST.

THE SECOND EDITION.

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THE INTRODUCTION.

THE migration of birds is a topic ſo curious, intereſting, and important, that we cannot but recommend it to every ſtudent of Nature, and particularly to thoſe whoſe inclination may lead them to that moſt uſeful and delightful province of natural hiſtory, called Ornithology. Such an inveſtigation, we preſume, is well worthy their attention and labour, and as it is inſeparable with the ſubject, we think it a duty incumbent on them. They ſhould be diligent and indefatigable to ſet the matter in a clear light. They ſhould endeavour to aſſign the reaſon why ſome birds annually forſake us at particular ſeaſons, and make their regular returns; alſo, why ſome prefer certain places for their ſummer, and others for their winter reſidence.

But this ſubject, curious and advantageous as it is, has hitherto been too much neglected. Very few authors of reputation have taken the pains to inveſtigate it as they ought. Naturaliſts, in general, are ſilent on this head, or very ſuperficially conſider it. Almoſt all other topics, whether frivolous or important, uſeful or not uſeful, have claimed their regard, and been ſo frequently

quently diſcuſſed by ſuch a multiplicity of writers, that they are quite exhauſted, and dwindle into tautology. This is not the caſe with the ſubject now under conſideration; the migration of birds has been too much unnoticed—has not enough been conſulted, in this age eſpecially, when every ſpecies of writing is patronized, and the delightful ſtudy of natural hiſtory particularly encouraged.

When every other ſcience that we can enumerate, or that can be thought of, has been ſo often, ſo univerſally written on, we think it a matter of ſurprize that the emigration of the feathered tribe, a wonder in nature we annually ſee renewed, ſhould eſcape the obſervation of the curious, and remain ſo long neglected, unthought of, unnoticed, unexplored. It is greatly to be lamented that none of our countrymen, except two northern naturaliſts, Mr. Klein, and Mr. Echmark, have profeſſedly treated on the migration of birds. The ſouthern parts of Europe, where the majority of our ſummer emigrants ſpend the dreary ſeaſon, or at leaſt ſteer their courſe that way in their paſſage to remoter climes, has as yet produced nothing material to aſſiſt the enquiries of the naturaliſt. This is wonderful indeed! Surely incurioſity and inattention peculiarly diſtinguiſh thoſe countries. We cannot, however, forget to pay our moſt grateful acknowledgments to two perſons in particular, who have diſcuſſed this ſubject as far as it related to rural œconomy, and in ſuch a manner as is worthy of applauſe, and does honour to their reſpective

ſpective countries. Mr. Alexander Mal. Berger, and Mr. Stillingfleet, are the gentlemen we mean.

A comparative view of the remarks and obſervations of former writers, would be of infinite ſervice to us; they would not only elucidate, but help our conjectures, and give us great inſight into the ſubject. New obſervations and new diſcoveries may be made in one age, that are not in another, by the hints that one generation tranſmits to another. Human reaſon is ſtill aiming at perfection. What is only begun in one generation, is often compleated in a ſucceeding. Many important affairs, many things of infinite conſequence to mankind, which are now but imperfectly known, and of which we have only a ſuperficial knowledge, may poſſibly, hereafter, be thoroughly underſtood. *Ita res accendunt lumina rebus.*

That all manner of ſciences have improved, and are ſtill improving, is a truth too obvious to be diſputed. *Seneſcente mundo adoleſcunt ingenia*, the older the world, the wiſer. The knowledge and experience of our predeceſſors are undoubtedly advantageous * to us. Many good, many valuable things are to be found in the works of the ancients. Theſe are very ſerviceable to us in our ſtudies, and throw light upon the reſpec-

* A certain author very juſtly remarks, that we do not owe the tenth part of what we underſtand to the force of our own reaſon; but we collect it either by peruſing the labours of the dead, or by borrowing of the living, as they did of others. Almoſt all human knowledge deſcends, as it were, by lineage. The whole round of ſcience proceeds diſcurſively, and by a kind of gradation.

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tive ſubjects they treat of. Apparent it is, that the ancients were too credulous, were apt to deal in fiction, and amaſſed every thing that came in their way, without lopping off the ſuperfluities. We muſt not, however, for ſuch a failing, without any diſcrimination, condemn their labours; or on that account think them unworthy of our attention: No,—we ought rather to thank them for their knowledge and reſearches, their induſtry and erudition, bequeathed to poſterity for the benefit of ſucceeding ages.

But to reſume,—we allow that a proper, complete, and ſatisfactory diſcuſſion of the ſubject we are recommending to the attention and conſideration of the naturaliſts, is an arduous and difficult undertaking. But this ſhould by no means diſcourage or intimidate us. The curioſity, the pleaſure, the advantage, and novelty of a conſummate inveſtigation, will fully compenſate us for the trouble. In the execution of any individual thing, is not ſome application and induſtry on our part neceſſary? Let us then ſtimulate our intellectual faculties, and exert our mental powers; let us beſtow ſome pains to ſolve this queſtion—a queſtion which has long remained involved in darkneſs—a queſtion which has been inſcrutable for ages—Whence come the ſtork and the turtle, the crane, &c.

To be ſufficiently qualified for this taſk, it is neceſſary that the inquirer ſhould confine himſelf to one certain tract the whole year; he ſhould be particularly careful to mark the exact period of the arrival and diſappearance of birds; he ſhould obſerve

obſerve in what order the different ſpecies come, and at what time, and in what manner they go; alſo how they ſteer their courſe, whether eaſt, weſt, north, or ſouth; he ſhould commit every obſervation to paper, and compare them with the remarks of others who have written on the ſubject; he ſhould likewiſe attend to the temperament of the air, and to the plenty or failure of fruits and berries, as on theſe accidents many curious and advantageous remarks may be made; he ſhould cultivate an acquaintance with the gentlemen of the navy, conſult their journals to diſcover what birds alight on the ſhips, and at the ſame time ſhould endeavour to learn at what ſeaſons they appeared, in what latitude, &c. Were theſe methods vigorouſly and ſtrenuouſly purſued, we might eaſily trace them to their reſpective abodes.

Such then has been our attempt; we have filled volumes with remarks; have ſtrictly obſerved, for a long term of years, the particular, the exact time each ſpecies appear and diſappear; the way they ſteer when they quit this iſland; and from what quarter they arrive when they viſit us again. We have regiſtered theſe remarks, compared them with the obſervations of others, examined the journals of ſeamen, collected the relations of travellers, and made every other information that was in our power, in order to arrive at a *perfect* knowledge of this ſubject.

The method we have taken in conſidering the migration of birds, we preſume, will be found

to be a judicious one. The works of others are firſt attended to; their remarks, obſervations, conjectures, and opinions, are laid open to the reader; when erroneous, they are confuted, not by ſpeculative, but experimental reaſoning; when conſiſtent and probable, coinciding with our own ſentiments, they are embraced; and if they ſtrengthen, elucidate, or any way confirm our aſſertions, we have thought proper to incorporate them, ſenſible that a variety of proofs will eſtabliſh our opinion, and render it quite incontrovertible. Having conſulted every author, both ancient and modern, that has written on this curious particular of birds; having conſidered their different conjectures, and nicely weighed their reſpective arguments in the balance of juſtice, in the unerring and impartial ſcale of truth; and at the ſame time having added to all this an ample ſum of reiterated obſervation and experience, conſidered the ſubject in all its circumſtances, compared and recompared it, we have at laſt unveiled the grand myſtery, diſperſed the gloomy ſhades of ignorance, and brought to light a ſecret, which has remained hid in obſcurity for a long ſucceſſion of ages.

But we have already exceeded the limits of an introduction, and can only add, that no diligence or labour has been wanting on our part, to render this diſcourſe intereſting and entertaining to the curious in general, as well as uſeful and ſatisfactory to the moſt inquiſitive reader. We have endeavoured to make it as methodical as poſſible. Our ſummer viſitants are firſt copiouſly

and

and distinctly treated of. Winter birds of passage are next particularly considered, together with wandering emigrants, or those that do not totally remove from our island. The reflections on the migration of birds at the conclusion, we presume, will not be unacceptable to the reader.

Market-Lavington, Wilts,
February 21, 1780.

ERRATA.

Page	9,	laſt Line,	read v. 2, p. 169.
	10,	Line 6,	read monſtrous.
	11,	— 22,	read Buffon.
	19,	— 6,	read where.
	22,	— 23,	read etotoli.
	27,	— 11,	read do.
	34,	— 22,	read who were.
	42,	— 23,	read immenſe.

A

DISCOURSE

ON THE

Emigration of Britiſh Birds:

OR,

This Queſtion at laſt Solv'd,

Whence come the Stork, and the Turtle, the Crane, and the Swallow; when they know, and obſerve, the appointed Time of their coming?

Of Summer Birds of Passage.

AS our little migratory ſummer viſitants are moſt numerous, and the moſt remarkable for their regular annual appearance; as they have in every clime, and every country, more attracted the notice of mankind,—we think proper to begin with them; and firſt of the *Swallow tribes*.

Before we offer to the reader's conſideration our *own opinion*, concerning the manner theſe, and other ſummer birds of paſſage, diſpoſe of themſelves in the bleak and gloomy ſeaſon, we ſhall, purſuant to our propoſal in the introduction, lay before him the many chimerical notions, the many groundleſs conjectures, the many fooliſh, unreaſonable, impertinent, and incongruous

hypotheſiſes, which have, from time to time, been advanced * on this topic. We ſhall not only mention the tales which ſuperſtition has raiſed, or credulity received, but alſo the ſentiments and obſervations of ſubſtantial creditable authors; particularly of thoſe learned naturaliſts, whoſe works are an honour to themſelves, and a treaſure to the Britiſh nation.

Among naturaliſts there are *four* opinions how theſe birds encounter the winter. The firſt is ſupported by great antiquity, which is, that they hide themſelves in hollow trees, in caverns of rocks, in ſand pits, in old buildings, under the earth, &c. Here they are ſuppoſed to continue in a torpid ſtate; have no ſenſible evacuations; breathe little, or not at all; and moſt of the viſcera ceaſe from their functions. In this condition they are ſaid to remain, till, by length of time maturating the proceſs, or by new heats, the fluids are attenuated, the ſolids are ſtimulated, and the functions begin where they left off.

Ariſtotle and Pliny are ſtrenuous advocates for this conjecture; their accounts, though not invariably the ſame, almoſt entirely coincide. They aſſert that ſwallows do not remove to warmer climes, but either retreat into ſand banks, or winter in the hollows of rocks, and loſe their plumage during that period. Many reputable naturaliſts have adopted the former part of their opinion, and pretend to affirm that ſome ſpecies have been diſcovered in a torpid ſtate. Thus one in particular delivers it as a fact, that heaps of ſwallows have been found lying in the cliffs of the rocks that impend over the ſea: it is alſo ſaid, theſe birds have been diſcovered in the chalky cliffs of Suffolk, at the fall of

* We beg to be excuſed for introducing a legion of inconſiſtent fables, which, in merit, are hardly worthy peruſal. Our intention here, is not to convince by argumentative proofs; but only to amuſe and entertain the reader, by reciting, and exploding the variety of laughable ſuppoſitions and glaring errors, which have from time to time appeared. Indeed, I am no advocate for burleſque, but I cannot repreſs the humourſome paſſion on ſuch a ludicrous occaſion.

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a great fragment ſome time ſince. In many other places, (Mr. Pennant ſaith) they have been found, but I will not vouch for the truth of it; as firſt, in a decayed hollow tree, that was cut down near Dolgelie, in Merionethſhire; ſecondly, in a cliff near Whitby in Yorkſhire, where, in digging out a fox, whole buſhels of ſwallows were found in a torpid condition; thirdly, in an old lead mine, in Flintſhire, vaſt numbers of ſwallows, it is ſaid, were ſeen clinging to the timber of the ſhafts, ſeemingly aſleep; * on flinging ſome gravel on them, they juſt moved, but never attempted to fly, or change their ſituation. Klein alſo gives an inſtance of ſwifts being found in a torpid ſtate.†

The following account of ſome ſwallows on the Rhine, was communicated to Mr. Peter Collinſon, by Mr. Achard, and was read before the Royal Society the twenty-firſt of April, 1763.

"In the latter end of March," ſays he, "I took my "paſſage down the Rhine, to Rotterdam. A little "below Baſil, the ſouth bank of the river was very "high and ſteep, of a ſandy ſoil, ſixty or eighty feet "above the water.

* Mr. Pennant, to whom this account was tranſmitted, thinks there is a partial migration of theſe birds; he is of opinion, that the majority of them remove to diſtant countries, and that the feeble, late hatches, conceal themſelves in this iſland all the winter.

He endeavours to ſtrengthen this ſuppoſition by argumcnts very unphiloſophical, and not at all ſatisfactory.—If it ſhould (ſaith this writer) be demanded, why ſwallows alone are found in a torpid ſtate, and not the other many ſpecies of ſoft billed birds, which diſappear about the ſame time, the following reaſons may be aſſigned: no birds are ſo much on wing as ſwallows; none fly with ſuch ſwiftneſs and rapidity; none are obliged to ſuch ſudden and various evolutions in their flight; none are at ſuch pains to take their prey; none exert their voice more inceſſantly; all theſe occaſion a vaſt expence of ſtrength and ſpirits, and may give ſuch a texture to the blood, as other animals cannot experience; and ſo diſpoſe, or we may ſay, neceſſitate this tribe of birds, or part of them at leaſt, to a repoſe more laſting than that of any other. *Britiſh Zoology.*

† Hiſt. Av. 204.

"I was ſurprized at ſeeing, near the top of the "cliff, ſome boys tied to ropes, hanging down, doing "ſomething. The ſingularity of theſe adventurous "boys, and the buſineſs they ſo daringly attempted, "made us ſtop our navigation, to enquire into the "meaning of it. The watermen told us, they were "ſearching the holes in the cliffs for ſwallows, or "martins, which took refuge in them, and remained "there all the winter, until warm weather, and then "they came abroad.

"The boys being let down by their comrades to the "holes, put in a long rammer, with a ſcrew at the "end, ſuch as is uſed to unload guns, and, twiſting "it about, drew out the birds. For a trifle I procured "ſome of them. When I firſt had them, they ſeemed "ſtiff and lifeleſs; I put one of them in my boſom, "between my ſkin and ſhirt, and laid another on a "board, the ſun ſhining full and warm upon it; and "one or two of my companions did the like.

"That in my boſom revived in about a quarter of "an hour; feeling it move, I took it out to look at it, "and ſaw it ſtretch itſelf upon my hand; but perceiv-"ing it not ſufficiently come to itſelf, I put it in again; "in about another quarter, feeling it flutter pretty "briſkly, I took it out, and admired it. Being now "perfectly recovered, before I was aware, it took "flight; the covering of the boat prevented my ſeeing "where it went. The bird on the board, though ex-"poſed to a full ſun, yet I preſume, from a chilneſs "of the air, did not revive ſo as to be able to fly."

Such is this gentleman's account, on which the following obſervations were made by Mr. Collinſon:

"What I collect from Mr. Achard's relation, is, "that it was the practice of the boys annually to take "theſe birds, by their apparatus, and ready method of "doing it; and, the frequency of it was no remarkable "thing to the watermen; next, it confirmed my for-"mer ſentiments, that ſome of this ſwallow tribe go "away, and ſome ſtay behind, in theſe dormitories,

"all

"all the winter. If my friend had been particular as "to the ſpecies, it would have ſettled that point."

Notwithſtanding the authority of Ariſtotle, Pliny, Klein, Pennant, Achard, and others, we *cannot aſſent* to the above circumſtances, viz. that ſwallows lie torpid in caverns of rocks, hollow trees, &c. The innumerable teſtimonies of an oppoſite nature, which continually croud in upon us, ſufficiently convince us that this conjecture, which ſo many have adhered to, and which has ſo long been maintained, is in reality only a *ſuperſtitious error*. The internal conformation of ſwallows, is a *proof* that they cannot remain dormant during the winter. Anatomiſts inform us, that all thoſe animals which are deſigned by nature for a temporary torpidity, have ſomething in their make different from others, to fit them for that condition, and enable them to remain ſo long a time without ſuſtenance. This is not the caſe with any of our ſummer emigrants, as has been proved by experiment.*

The birds ſeen by Mr. Achard, at the latter end of March, we preſume, were only *ſand-martins*, which are a ſpecies that arrive very early in this country, and at their firſt coming, always repair to the ſand banks, &c. where they continue the whole ſummer. Poſſibly they were ſcooping out their reſpective apartments to breed, and neſtle in, when they were taken by the boys, and inſtead of being benumbed by the cold, as was imagined, might only be hurt by the cruel method of drawing them out of the holes.†

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* See page 11.

† As this occurrence, which Mr. Achard relates, happened at the latter end of March, it is pretty obvious the ſpecies ſeen at that time were ſand-martins. For at this period, (unleſs the ſpring proves remarkably backward) the greater part of this tribe have reached our iſland. Swallows, houſe-martins, and ſometimes ſwifts, are ſeen in our country, flying about the air in great numbers, at the latter end of March; and frequently the majority of theſe birds, as well as the reſt of our ſummer gueſts, are arrived at that time. Undoubtedly, therefore, the ſpecies obſerved

We do not deny but that there are undeniable inſtances of a few being found in a dormant ſtate, at the *beginning* of winter; but in all probability they were only *ſtragglers*, which were hatched *too late* to join in the general emigration. Incapable of aſſembling with the great rendezvous, like bats at the commencement of the frigid ſeaſon, theſe young birds flit, and wander about, 'till pinched by the cold inclement air, for a tranſient ſhelter, they retreat into antique buildings, hollow trees, under the eaves of houſes, &c. or find their way into ſome obſcure receſs, where they continue motionleſs, inſenſible, and rigid for ſeveral days, or perhaps weeks, before they expire. Often theſe unfortunate ſtragglers are reanimated by an unſeaſonable hot day, leave their hiding places, and are ſeen ſkimming the air in purſuit of flies. So late as the middle of November, which is full a month after the departure of the majority of the tribe, I have frequently obſerved a ſtraggler or two, either perched in the ſun, fluttering about wildly from place to place, or feebly ſweeping the atmoſphere for food. Extraordinary as it may appear, on the 3d of December, 1771, I ſaw a martin flying about as vigorouſly as though it had been in the midſt of ſummer. My curioſity was greatly excited at this remarkable phœno-

ſerved by this gentleman was the ſame as we have conjectured above. But we will ſuppoſe, did ſwallows *actually* lie torpid during the winter, the genial ſeaſon would certainly have called them abroad before the latter end of March, and it would be very extraordinary to find a ſingle one wrapt up, ſleeping in its winter dormitory, ſo late in the ſeaſon. What then can be more plain, but that our aſſertion, in contradiſtinction to that of Mr. Achard's, is right, is juſt? Beſide, as a farther demonſtration of the truth of what we have advanced, I have frequently ſeen near my reſidence,(*a*) ſand-martins drawn out of lofty ſand banks by boys, as early in the ſeaſon, and with the ſame apparatus, as that deſcribed by Mr. Achard. The birds taken in this manner were undoubtedly retired to thoſe receſſes for the purpoſes of building; and I cannot entertain that wild, that ridiculous notion, that they had lain there all the winter.

(*a*) i. e. At Market-Lavington, in Wiltſhire.

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menon.* For a conſiderable while I was unable to account for it, and could not imagine from whence it came, or how it could preſerve itſelf ſo long. To ſay it remained torpid for upwards of two months, would be talking extravagantly and inadvertently; or to aſſert, that it had taken its long excurſion over the ocean from a remote clime, would be equally as unreaſonable and unphiloſophical. Having ſince maturely and deeply conſidered this occurrence, I believe I have at laſt attained the genuine ſolution, which is,—that it was a bird bred here, and being left behind at the migration of the reſt, made a ſhift to ſupport itſelf in our country for a conſiderable time. This is ſtill the more probable, as the two months preceding had been uncommonly mild and warm. With propriety, therefore, we may reaſonably ſuppoſe, that there were then ſome inſects to be found flying in the air; this granted, there is nothing wonderful or ſurpriſing in the affair.

The appearance of ſwallows and martins at unſeaſonable times are frequent.† Mr. Pennant mentions

* Having then made no reſearches in natural hiſtory, and being quite a novice in ornithology, I muſt confeſs I was inclined to believe that martins, ſwallows, &c. laid motionleſs all the winter; but now innumerable evidences of an oppoſite nature convince me of the contrary

† Not only ſwallows, but many other ſpecies, which are denominated birds of paſſage, are not only ſeen here occaſionally, but are known to continue in this country all the winter. A few of the ſtone-chats and whin-chats (the greater part of which tribe diſappear in autumn) remain on our heaths and commons all the year round. The reaſon of this is not certainly known. Perhaps the few that ſtay behind are the produce of a late breed, and are incapable of departing with the reſt of their feathered mates. How they ſupport themſelves during the dreary ſeaſon we cannot pretend to determine; probably they pick a ſcanty ſubſiſtence from the places where they haunt, by feeding on gnats and other minute inſects, which glide about the air all the winter; or it is not impoſſible but they may change their uſual repaſt, when neceſſitated by nature.

Some

tions ſeveral inſtances of a ſimilar kind. Very near Chriſtmas (ſaith this author) a few appeared on the moulding of a window of Merton College, Oxford, in a remarkable warm nook. On the twenty-third of October, 1767, a martin was ſeen in Southwark, flying in and out of its neſt; and on the twenty-ninth of the ſame month four or five ſwallows were obſerved hovering round, and ſettling on the county hoſpital at Oxford. As theſe birds muſt be of a later hatch, Mr. Pennant very juſtly obſerves, 'tis highly improbable that, at ſo late a ſeaſon of the year, they would attempt, from one of our midland counties, a voyage almoſt as far as the equator or Senegal.

We proceed now to conſider the *ſecond* opinion of naturaliſts, with reſpect to the migration of ſwallows, &c. and hope to convince the reader of its improbability and abſurdity, by cogent and undeniable arguments.

Amazing and unnatural as it may appear, it has been affirmed by many, that ſwallows paſs the winter immerſed under ice at the bottom of lakes, or beneath the water of the ſea. The firſt who propagated this moſt abſurd and ridiculous notion was Olaus Magnus, Archbiſhop of Upſal, who very ſeriouſly acquaints us, that they are frequently found in cluſtered maſſes at the bottom of the northern lakes, mouth to mouth, wing to wing, foot to foot, and that they aſſemble together for this purpoſe, and creep down the reeds in autumn to their ſubaqueous receſſes. That when old fiſhermen diſcover ſuch a maſs, they throw

Some of thoſe birds, which viſit us at the approach of winter, are alſo obſerved to ſtay with us the ſummer ſeaſon, though the majority of the ſame ſpecies conſtantly and regularly remove. The woodcock and ſnipe, for inſtance, ſometimes continue with us during ſummer, and even breed with us, making their neſts as well on the higheſt mountains, as in our low moors and marſhes. Fieldfares, it is reported, have been alſo ſeen here in the midſt of ſummer; and a certain author relates, that he has found the young of the latter in marſhes, and among ſedge, near the water.

it

it again into the water; but when young inexperienced ones take it, they will, by thawing the birds at a fire, bring them indeed to the uſe of their wings, which will continue but a very ſhort time, being owing to a premature and forced revival.*

Olaus Magnus further adds, that a large cluſter of ſwallows being accidentally carried by ſome boys into a ſtove, the ſwallows, after thawing, began to fly about, but weakly, and for a very little time.

'Tis obvious the good Archbiſhop did not want credulity in other inſtances, for having ſtocked the bottoms of lakes with birds, he ſtores the clouds with mice, which ſometimes fall in plentiful ſhowers in Norway, and the adjacent countries.†

* There are more accounts *(a)* of ſwallows being found in a benumbed ſtate, immerſed under water; but as they are too notorious, and incredible, to merit our attention, we ſhall paſs them over unnoticed. We will, however, merely for the entertainment of the reader, juſt mention a few.

Etmuller relates, that he himſelf had diſcovered above a buſhel of ſwallows under the ice in a fiſh pond, all dead to appearance; but the heart ſtill retaining its pulſation. To the ſame purpoſe, Dr. Colas, ſpeaking of their manner of fiſhing in the northern parts, by breaking holes, and drawing their nets under the ice, ſaith, that he ſaw ſixteen ſwallows drawn out of the lake of *Samrodt*, and about thirty out of the King's great pond in *Roſincilen*; alſo at *Schlebitten*, near an houſe of the earl of Dobna, he ſaw two ſwallows juſt come out of the water, that could ſcarce ſtand, being very wet and weak, with their wings hanging on the ground; and that he hath obſerved the ſwallows to be often weak for ſome days after their appearance. *(b)*

Agreeably to this, Mr. Rheaumur received ſeveral accounts, that bundles of ſwallows have been found in quarries, and under the water; and he was promiſed ocular demonſtration, but none of his correſpondents kept their words. *(c)*

Another author informs us, that he has taken them out of the bottoms of rivers, ponds, lakes, &c. in great quantities, where they paſs the winter without motion, and have no perceptible ſigns of life, except the beating of the heart.

† Geſner. Icon. An. 100.

(a) Derham's Phyſ. Theol. 349. Pontoppidan's Hiſt. of Norway, 1, 99. Etmuller Diſſert. 2, cap. 10, ſect. 5.

(b) Derham's Phyſ. Theol. 350.

(c) Brookes's Nat. Hiſt. b. 2, p. 169.

Inconſiſtent as it may appear to a ſerious and conſiderate reader; unnatural and unreaſonable as the ſuppoſition is, credit has actually been given to the *ſubmerſion* of ſwallows, even by our own countrymen. What ſuperſtitious preſumption! Erroneous aſſertion indeed! How incompatible with reaſon!—how monſtruous to thought!—We cannot think on it without ſmiling at the folly, at the ſimplicity of the authors.

Mr. Klein, who in other inſtances cannot be accuſed of eaſy credulity, is a dupe to this notion, and ſtrongly patronizes this doctrine. How he came to adopt this moſt prepoſterous of all errors, we cannot imagine. He relates the following hiſtory of the ſwallows retiring, which he received from ſome countrymen, and others. They aſſerted, that the birds aſſembled in numbers on a reed, till it broke, and ſunk with them to the bottom; and before their immerſion, they had a dirge of a quarter of an hour's length. That others would unite in laying hold of a ſtraw with their bills, and ſo plunge down in ſociety. Others again would form a large maſs by clinging together with their feet, and in that manner commit themſelves to the deep.*

Though theſe accounts have been countenanced, confirmed, and eſtabliſhed by ſuch a group of eminent naturaliſts and others, there appears not the ſmalleſt truth in them. Indeed, they are ſo abſurd, ſo exceedingly abſurd, that they are hardly worthy confutation. Can it be poſſible that ſuch tender and delicate birds, who are unable to bear the inclemency of our mildeſt winters, ſhould immerſe themſelves in the coldeſt of all elements, and remain there ſo long a period without periſhing? Can it be poſſible for them to metamorphize themſelves, as it were, into amphibious animals, and alternately change their element, as beſt ſuits their conſtitutions?

Surely the water muſt be too frigid and too unnatural a retreat for ſuch ſummer birds; and we are inclined to believe, that ſhould they have no occaſion for breath

* Klein's Hiſt. Av. 205, 200.

breath in their ſubaqueous dormitories, yet in the ſpring, when the genial warmth begins to call them from their wintry tombs, their feathers would not be in a proper condition to lift them out of the water. Friſch has made an experiment, which ſtrikes at the very foundation of this aſſertion, and evidently proves the falſity, the inconſiſtency of theſe relations. He informs us, that he has taken ſeveral ſwallows alive, tied marks to their claws, and then releaſed them. When the ſame ſwallows returned again, he did not perceive the water had ſpoiled them: one of the criterions, or marks, was red thread, made ſo by a water colour only, which muſt needs have been waſhed off, if the ſwallow had hid itſelf under the water. Perhaps it may appear wonderful how he came to catch the ſame bird again; but we muſt conſider that ſwallows always return to their old neſts again,* and commonly build them in chimney tops.

It has been ſuppoſed, that in the ſwallow ſpecies, which have their winter reſidence under the water, the blood might loſe its motion by the ſeverity of the cold, and thus the birds become torpid; but Mr. Buffar, by placing many of this ſort in an ice-houſe, diſcovered that the cold, by which their blood was congealed, was alſo fatal to them.

Some of the naturaliſts, conſcious that this chimerical, this egregious hypotheſis would not bear the teſt, ſtarted another conjecture, equally as erroneous and unlikely as the former, viz. Whether there may not be a ſpecies, apparently like the reſt, but of a different internal conformation, in order to capacitate them for a ſtate of inſenſibility during the rigour of the winter. A curious anatomiſt, therefore, diſſected ſeveral of them, but found nothing in them different from other birds, as to the organs of reſpiration; and he ſaith, all thoſe creatures that ſleep during the dreary ſeaſon, as bats, frogs, lizards, &c. are of a *contrary make* as to

* See page 21, where this is more fully demonſtrated.

thoſe organs; it is therefore (ſaith he) a wild opinion that theſe birds can remain any long time under water without drowning.

It is, indeed, enough to raiſe one's indignation, to ſee ſo many vouchers, ſo many candidates for this fooliſh and erroneous conjecture, which is not only repugnant to reaſon, but, according to the laws of nature, an abſolute *impoſſibility*. In relating ſo many inſtances of unparalleled credulity, I confeſs I cannot ſuppreſs the iraſcible paſſion: That ever men of ſenſe, men of genius, men of diſtinguiſhed abilities, ſhould ſuffer themſelves to be ſo involved, ſo deeply involved in the dark miſts of error and ignorance! They aſſign not the *ſmalleſt* reaſon to account for theſe birds being able to endure ſo long a ſubmerſion without being drowned, or ſuffocated. Not the ſmalleſt reaſon is given how they preſerve themſelves,* or remain without decaying, in ſuch a cold and turbulent element, which muſt be very unnatural to ſo weak and delicate a bird.

Having ſufficiently ſhewed the abſurdity of a notion, which has long been countenanced and ſupported, we come now to conſider the *third* opinion of authors, which has been advanced on this topic, and in this we ſhall be very conciſe.

About the year 1740, a pamphlet on the emigration of birds appeared, aſſerting that they fly to the moon, or ſome other planet, where they take up their abode during winter, and return from thoſe aerial habitations again in the ſpring. The author of the rhapſody has taken infinite pains to confirm this ſtrange and novel

* On ſuppoſition we did admit that ſwallows, &c. do retire under the water, in ſeas, rivers, ponds, lakes, and the like, I cannot ſee how they can eaſily eſcape the ravages of aquatic animals, and other finny inhabitants of that element. Certainly if the voracious creatures of the deep ſhould diſcover their lurking places, (as no doubt but ſometimes they would) they would fall to, and deſtroy them without mercy. The dangers which theſe birds would be expoſed to under the water, where their enemies ſwarm in immenſe numbers, are ſo many, and ſo great, that not *one tenth part* of them would ever be able to eſcape.

ſuppoſition;

ſuppoſition; he thinks that they are about two months paſſing thither, and that after they are arrived above the lower region of the air, into the thin æther, they will have no occaſion for food, as it will not be ſo apt to prey upon the ſpirits, as our lower nitrous air. Even in this *terrene*, ſaith this author, bears will live upon their fat all the winter, without any new ſupply of food; and perhaps, ſaith he, theſe birds, being very ſucculent and ſanguine, may have their proviſions laid up in their very bodies for their voyage.

And 'tis very probable (ſaith this author) that they are in a kind of ſleep, or ſtate of inſenſibility, if not all, a great part of the way, between the attraction of the earth and that of the moon, to which ſleep the ſwift acquired motion may very much contribute.

Farther, he obſerves, that if it can be proved theſe birds do not fly to the moon, who can tell but that there may be ſome concrete bodies, at much leſs diſtance than that opake planet, which in all probability may be the receſs of theſe creatures, and may ſerve but for little elſe than their entertainment? If there be ſuch ætherial iſlands, they muſt be ſuppoſed of ſuch magnitude only, and at ſuch a diſtance, as their reflective light may not reach our earth, (though perhaps they may ſerve to illuminate our atmoſphere) and yet no farther off but theſe birds may arrive unto them in due time.*

This notion of flying to the moon, &c. is, I think, too extravagant to require any confutation. The moon, as Mr. Jonſon, in a letter to Mr. Ray, very juſtly remarks, is too far a journey for theſe birds.† 'Tis equally ridiculous to ſuppoſe, as a celebrated writer has done, that they ſoar above the atmoſphere in their paſſage to diſtant countries; for theſe feathered nations would die inevitably, if removed beyond the maſs of air that ſurrounds the earth, for want of that uniform preſſure

* See an eſſay on the emigration of birds, by an anonymous author, p. 42, and 47.

† Ray's Letters, p. 198.

which

which is the ſpring of internal motion in the animal machine. This is rendered demonſtrable from reaſon and experiment, on animals in the exhauſted receiver.

Upon the whole, the fourth opinion of naturaliſts, which we are now going to enter upon, coincides exactly with our own ſentiments, and has the utmoſt appearance of probability; which is, that they *remove to warmer climates*, where they meet with a ſupply of food, and a temperature of air, adapted to their conſtitutions.

This notion of ſwallows emigrating to diſtant climes, has been frequently imperfectly hinted, but never ſatisfactorily proved. By our own obſervations and experiments, combined with authors of the greateſt veracity, we flatter ourſelves to render this ſuppoſition quite inconteſtable.

That every ſpecies of ſwallows remove at the commencement of winter into warmer countries, is no longer to be diſputed, as we can convince the reader by innumerable and undeniable proofs. Previous to their departure, it is well known that they aſſemble in great numbers on the tops of towers, churches, trees, chimnies, &c. Here they will continue twittering for ſeveral hours together, as if in conſultation. On a ſudden they will all fly off, take an ample circuit in the atmoſphere, and after a flight of a few minutes reſt again. This they repeat daily, when the weather is ſerene and warm, a month or ſix weeks before their departure. Theſe tranſient diurnal excurſions, which are ſo often renewed, are probably deſigned to exerciſe their young, and prepare them for the long aerial journey, which in a little time they are to attempt; or poſſibly theſe occaſional eſſays may be made by the majority, in order to remind them of their voyage, and to capacitate them to fly with more facility over the wide Atlantic ocean, to their winter reſidence; which, I ſuppoſe, cannot be leſs than three or four thouſand miles diſtant.

Having

Having called an aſſembly, and concerted meaſures, as ſoon as the cold commences,* and thoſe ſwarms of inſects diſappear, which a little while ago filled the air; apprized of the gloomy ſeaſon, they wait a favourable gale, and then unanimouſly take their long and arduous voyage † through the liquid ſky.

As a farther proof, theſe birds are annually obſerved to fly over the ſeas, in numbers immenſe. What darkening clouds of them do the mariners frequently ſee, ſweeping over the wide capacious ocean! Often, through fatigue and wearineſs, they alight in myriads

* When the ſolar heat apparently declines, when the days ſhorten, and chilling froſts appear, theſe concomitants of approaching winter are ſo many ſignals to theſe birds to leave our climate, and ſearch for one more agreeable to them; beſide, by theſe accidents being alſo ſtinted in their food, they are neceſſitated to depart. The generality of this tribe ſeldom forſake us till toward the middle of October, and ſometimes not till after that period. They uſually appear about the middle of April; indeed, in ſome ſeaſons, by the beginning of that month; nay, there are inſtances of their being ſeen by the middle of March.

† That maſter of bold deſcription and beautiful painting, Mr. Thomſon, has given us, in his Seaſons, the following account of the departure of the ſwallow tribes, which we preſume will not be diſagreeable to the reader.

When autumn ſcatters his departing gleams,
Warn'd of approaching winter, gather'd, play
The ſwallow people; and toſs'd wide around,
O'er the calm ſky, in convolution ſwift,
The feather'd eddy floats: rejoicing once,
Ere to their wintry ſlumbers they retire;
In cluſters clung, beneath the mouldering bank,
And where unpierc'd by froſt the cavern ſweats;
Or rather into warmer climes convey'd,
With other kindred birds of ſeaſon; there
They twitter chearful, till the vernal months
Invite them welcome back; for thronging, now
Innumerous wings are in commotion all.

AUTUMN, l. 835, &c.

We are happy to have ſo able a poet, and ſo learned a man, as Mr. Thomſon, on our ſide. His authority, with reſpect to the migration of ſummer birds of paſſage, and their paſſing to warmer climes, is, we think, no contemptible evidence.

on

on the ſhips,* and after a tranſient repoſe, urge their flight again toward the deſtined port; where they arrive in due time, and remain in peace and plenty, till clement ſkies, and vernal ſuns, invite them back again.

Mr. Cateſby, a very learned and ingenious naturaliſt, in ſpeaking of the migration of ſwallows, ſeems to have treated the ſubject with a great deal of judgment.† The reports of thoſe we call birds of paſſage lying torpid in caverns and hollow trees, this gentleman thinks are ill atteſted and abſurd. He agrees with us in opinion, that theſe birds fly into other countries, with this additional conjecture, that the places they retire to, lie in the ſame latitude in the ſouthern hemiſphere, as thoſe from whence they depart; where the ſeaſons reverting, they enjoy the like temperature of air; but this we think is abſolutely impoſſible, the diſtance being for the moſt part too great; nor is there neceſſity for ſuch a long paſſage, ſince the countries on this ſide the line may anſwer the ſame purpoſe.

As to their manner of travelling, it is probable that ſwallows, whoſe wings, by their length and continual

* Agreeably to this, Sir Charles Wager gives the following account of what happened to him in one of his voyages. "Returning home," ſaith Sir Charles, "in the ſpring of the year, "as I came into ſounding in our channel, a great flock of ſwallows came and ſettled on all my rigging; every rope was covered; "they hung on one another like a ſwarm of bees, the decks and "carving were filled with them. They ſeemed almoſt famiſhed "and ſpent, and were only feathers and bones; but being recruited with a night's reſt, took their flight in the morning. *(a)*

This very great fatigue evidently proves, that their journey muſt have been very long, conſidering the amazing ſwiftneſs of theſe birds; it is likely they had paſſed over the Atlantic ocean, and were returning from Senegal, or other parts of Africa.

We have innumerable other proofs of ſwallows being ſeen paſſing over the ocean; but they are too prolix to recite here. Thoſe we have already mentioned are collected from the beſt authorities, and are ſo well atteſted that they cannot be denied.

† See Philoſoph. Tranſact. No. 483.

(a) Phil. Tranſ. vol. 2, part 2, p. 459.

exerciſe,

exerciſe, are fitted for long flights,* can ſtretch over wide ſeas, and perform their journey much ſooner, and with more facility, than other ſmall birds which have ſhort wings, &c.

Mr. Willoughby is of opinion, that ſwallows go into hot countries, particularly to Egypt and Ethiopia; and indeed it is not improbable but ſome of them may ſpend their winter there, as at the time theſe birds quit Europe, the inundation of the Nile is over, and the marſhes and ſtagnating waters ſwarm with flies of different ſpecies, which are proper food for ſwallows. During our winter, therefore, we may ſuppoſe ſome of them to ſtay in thoſe countries, where every thing at that period is in its bloom and beauty, till ſcorching heats induce them to ſeek a milder climate, and fly from Africa to Europe.

Another reputable and very learned naturaliſt ſpeaks to this purpoſe, which farther confirms our ſentiments, that ſwallows *actually emigrate into warmer climes.*

It is (ſaith he) a moſt egregious notion indeed, to think, as many have done, that ſwallows and other ſummer birds ſleep during winter in hollow trees, in ſand pits, under the earth, &c. till, rouſed by the invigorating warmth of returning ſpring, they riſe from their dormant ſtate, and reaſſume again their gaiety. Moſt of the ancient naturaliſts, indeed, were of this opinion, and many of the moderns adhere to it; but it is eaſy to ſhew the abſurdity of ſuch a conjecture, and it is equally eaſy to demonſtrate, that they abſolutely leave this part of the world at the approach of winter, and fly in purſuit of a more temperate region. Doubtleſs if they hid themſelves any where in this country, there would be *annual proofs* of it in almoſt every county

* In Kalm's voyage to America is a remarkable inſtance of the diſtant flight of ſwallows, for one lighted in the ſhip he was in, September the 2d, when he had paſſed over only two thirds of the Atlantic ocean. His paſſage was uncommonly quick; when this accident happened he was fourteen days ſail from Cape Hinlopen.

in England. 'Tis true, it has been frequently aſſerted, that ſwallows have been found in a torpid ſtate, both under the earth, and at the bottoms of rivers; but as there are no authentic and inconteſtable evidences, ſuch reports are undeſerving of our credit.

I cannot but think, (continues this naturaliſt) were they to reſide here, but that ſome of this tribe would appear earlier than they do, eſpecially when the ſpring is forward, and the weather warm. Nay, I cannot but think, were they to lie torpid, ſome of them would frequently be called abroad in the midſt of winter on a fair day; but it is certain they are never ſeen * before their appointed time. Beſide, I remarked this year, (1760) that we had the fineſt, mildeſt weather in February and March that ever was known; the ſpring was ſo exceedingly early, that the trees were cloathed in green a month ſooner than uſual; the weather was alſo remarkably warm, which I think muſt needs have awakened the ſwallow tribes from their torpid inactivity, had they been in any part of our iſland. Warm, uncommonly warm as thoſe months were, not one appeared till the middle of April;—a ſufficient *proof* that they do not lay torpid in any part of Great-Britain, but *actually leave us* † at the approach of winter.

But to render this truth *quite indiſputable*, to ſolve the matter fully, and prevent any farther controverſies on this affair, we beg leave to obſerve, that we have more than once had ocular proof of what, with propriety, we may term, an actual migration of theſe birds. About old Michaelmas we have frequently obſerved immenſe numbers of ſwallows and martins ſettled

* This writer ſeems totally ignorant that ſtragglers are ſometimes ſeen out of their ſeaſon; as he aſſerts, that they are "never obſerved but at their appointed times."—This, however, is no diſparagement to the ſcope of his arguments, the reſt of his ſentiments being founded on truth.

† Mr. Adanſon has proved beyond contradiction, that theſe ummer birds annually take their flight to a warmer region, and return again in the ſame manner.

ſometimes

ſometimes on the tops of trees, and ſometimes on buſhes, at a great diſtance from their ſummer haunts; here they have ſat ſilent for ſome time, as if in deliberation; on a ſudden we have ſeen them all take wing, mount to a certain height, and, with an eaſy regular motion, proceed toward the weſtern ocean, when our eye has followed them till they were quite imperceptible; and what was very extraordinary, not a ſingle one was to be found after the departure of the great aſſembly, which evidently teſtifies that what we obſerved was the *firſt ſally*, or *ſetting out*, of theſe ſummer viſitants. Theſe annual proceedings we have remarked for a long ſeries of years.*

The departure, and arrival of theſe birds, are remarkably *regular* with reſpect to the ſeaſon, which any one may be convinced of, by annually taking notice of the exact time when they go and come. I find by my journal, that they appeared in Wiltſhire on April 5,

* Similar to our account is that of Mr. White's.—Travelling one morning at the latter end of autumn, (ſaith this gentleman) between my houſe and coaſt, I was environed with a thick fog; but on a large wild heath the miſt began to break, and I diſcovered a number of ſwallows cluſtered on the ſtanding buſhes, as if they had rooſted there. As ſoon as the ſun broke out, they were inſtantly on wing, and, with an eaſy and placid flight, proceeded toward the ocean. After this I ſaw no more flocks, but only now and then a ſtraggler.

Theſe autumnal meetings are very common in the ſwallow tribes, juſt about the time they depart. On the willows, about the little iſles in the Thames, they are annually ſeen to aſſemble. We are informed, that on the 26th of September laſt, two gentlemen, who happened to be at Maidenhead-Bridge, furniſhed at leaſt a proof of the numbers there aſſembled. They went with torches, about midnight, to a neighbouring iſle, and in leſs than half an hour brought aſhore fifty dozen. The branches of the trees were loaden with them in ſuch a manner, that they had nothing more to do than to draw them through their hands, the birds never moving till they were ſecured. Some will, perhaps, aſſert that this rendezvous met for the purpoſe of plunging into ſubaqueous retreats; but was that the caſe, they could not eſcape diſcovery in a river conſtantly fiſhed as the Thames: undoubtedly a ſpeedy departure was their aim.

1774, and diſappeared on the 9th of October. In 1775, they were ſeen April 3, and left us October the 14th. In 1776, on the 7th of the ſame month, and left us one day later than the preceding year. In 1777, they appeared on the 4th, and diſappeared October the 13th. Next year they arrived on the 9th of April, and diſappeared about two days later. In 1779, they were ſeen April the 10th, and left us on the 12th or 13th of October; ſo that in the ſpace of five revolving ſeaſons, the time of their arrival and diſappearing agreed almoſt to a day. When they leave Europe, they always go off in vaſt flocks, and what is very remarkable, a ſtraggler is ſcarce ever left behind. In the vernal ſeaſon, they quit the warmer regions, and return in the ſame manner.

The different ſpecies of ſwallows do not go and come at the ſame time; the ſand martin uſually arrives firſt; about a week after the ſwallow is ſeen; a few days later, common martins come in great numbers, and diſperſe themſelves all over Europe. Each ſpecies commonly come to us in companies, and are generally firſt ſeen after a rainy day.

Extraordinary as it may appear, 'tis certain that the ſwift conſtantly diſappears about the middle of Auguſt. We cannot pretend to determine the cauſe why it leaves us ſo early; want of food cannot drive it from our climate, as inſects are then very plentiful in our iſland; neither can the ſeverity of the ſeaſon compel it to quit this country, as the weather is uſually very warm when it departs. Perhaps it may feed on a particular ſpecies of inſects, which may be very common in the firſt ſummer months, and vaniſh in autumn. As ſwifts always fly high, it is probable theſe inſects are found only in the upper regions of the air: it is alſo probable that their ſeaſon is over, and they are no longer to be found after the middle of Auguſt; if ſo, as nothing is more likely, the cauſe of their early migration is very evident.

'Tis no leſs true than remarkable, that ſwallows annually return to their reſpective haunts, and claim the ſame neſts which they occupied the preceding ſeaſon. This I have already demonſtrated in a former work.* How they ſteer their unerring courſe to their native countries, after ſuch a long and diſtant migration, cannot eaſily be conceived; unleſs we will ſuppoſe that they are guided, and impelled, as it were, by a certain quality of the air. If this be the caſe, at firſt ſetting out they muſt ſoar aloft, and after meeting with a particular part of the atmoſphere, congenial to their natures, they follow the ſame aerial tract, which brings them ſafe to the reſpective countries at which they are wont to arrive.† But if we allow this ſuppoſition, we muſt grant that a providential inſtinct is the compaſs by which they are guided. All brute creatures, it is well known, have a kind of law implanted in them by the Great Conſervator of the world; to this innate

* The book alluded to above, is a work which has lain by me finiſhed ſome years, but has not yet been publiſhed, entitled, *A New and Complete Natural Hiſtory of Britiſh Birds.* It will be compriſed in two large volumes octavo, and will ſpeedily appear. The publication of this performance has been purpoſely delayed, in order that it may be rendered as perfect and complete as poſſible.

† Not only martins, but every other ſummer bird of paſſage of the diminutive tribe, return to the ſame diſtrict, nay to the very ſame ſpot, which they inhabited in a former ſeaſon. Fly-catchers I have known to build eight, nine, and even ten years ſucceſſively, in a certain crevice of an old wall, not far from my dwelling; apprehenſive that it was the ſame bird which annually and invariably viſited the ſpot, curioſity prompted me to try an experiment, which put the matter out of doubt. When an opportunity offered, I took the female, cut off the extremity of the upper mandible of the bill, and with a knife made ſeveral perſpicuous marks on its claws: this done, I ſet her at liberty: the ſucceeding ſpring the ſame bird returned, with the diſtinguiſhing marks I had given it, which was at once ſatisfactory. Perhaps ſome will ſay it is impoſſible the bird ſhould ſurvive, after it was deprived of the point of its bill; they will, however, pleaſe to obſerve, that what was cut off was ſo very inconſiderable, that the loſs of it could hardly be perceptible to the bird; it could not therefore be any way detrimental to its feeding.

law

law they readily yield obedience, guided by the impulſe of which they cannot err. In ſhort, this is the faculty which directs and regulates them in all their ways, and all their actions.

We have now nothing more to add concerning the ſwallow tribes. The cleareſt evidence imaginable has been given, that they move into other regions. The pains we have taken to prove this, the variety of authors we have conſulted, and the many inſtances we have brought to confirm it, we doubt not, will be ſatisfactory to the curious.

The reſt of our ſummer emigrants fall next under conſideration. In the diſcuſſion of theſe, neceſſity obliges us to be leſs prolix, leaſt we ſwell this little volume beyond its appointed bounds.

The birds that leave us at the commencement of winter, and make their regular returns in the ſpring, are, the goatſucker, the cuckow, the turtle, the ſtork, the crane, the ſwallow tribe, the nightingale, the black cap, the wheat-ear, the fly-catcher, the ſtone-chat, the whin-chat, the white-throat, the butcher-bird, the wry-neck, the red-ſtart, the willow wren, etoboli, &c. &c.

It cannot be juſtly ſuppoſed that the ſmall birds of paſſage, which have ſhort wings, as the nightingale, black-cap, &c. can be capable of ſuch diſtant migrations as the ſwallow; it is therefore pretty certain that they have their winter reſidence in Spain, or the ſouth of France, countries which they may eaſily reach.

Theſe birds, in all probability, fly from hedge to hedge, and from field to field, feeding as they go, till they come to the neareſt ſea coaſt, and if they have not ſtrength to fly over, they can then with facility make their way to the ſouthern parts of Europe; and in all probability, that innate knowledge which prompts them to take theſe yearly excurſions, directs them to the narroweſt part of our channel, to ſhun the hazard of paſſing over the wide ocean. But theſe ſhort-winged birds are capable of longer flights than we are aware of,

for

for Bellonius aſſerts, that he has ſeen quails, which by their ſtructure ſeem little adapted for ſuch long journies, paſſing and repaſſing the Mediterranean in great numbers, at the ſeaſons when they leave us, and viſit us again.

'Tis very probable that the whole tribe of our ſummer viſitants do not all fly to the ſame countries, but ſpend the winter in different climates; for ſome of them leave us ſooner than others, and appear again earlier or later in the ſpring, according to the diſtance of the countries to which they come and go.

Next to the cuckow, the ſwift is the firſt that diſappears in the ſummer. In the beginning of September the nightingale retires, and is ſeen no more till the latter end of April, or the beginning of May. The black-cap, the white-throat, the wheat-ear, the fly-catcher, and the ſtone-chat, depart about the ſame time; but the two latter are uſually foremoſt in the ſpring, frequently appearing about the middle of March. Next come the willow wren and the red-ſtart, the whin-chat and the tit-lark, to proclaim the approach of ſpring, and charm us with their ſweet variety of notes. The reſt of the emigrants follow in ſucceſſion, and are uſually all arrived, ſcattered over the face of the country, by the beginning of May.*

* The coming of our ſummer birds are indeed, in ſome meaſure, regulated by the weather and the ſtate of the ſeaſon. When the ſpring commenceth early, they are commonly all arrived by the middle of April; when it is late, cold, and ſevere, as it frequently happens, they are retarded in their paſſage, and are never ſeen till the vernal ſeaſon is very far advanced.

Many of them (eſpecially thoſe that are weak and feeble) undoubtedly (unable to proceed) periſh in their journey. Many, it is likely, are deſtroyed by rapacious birds in their excurſions to and from this iſland; and many that arrive here too early, die when the ſeaſon is cold, for want of ſufficient ſubſiſtence.—Rheaumar informs us, that the ſwallows which appeared firſt, after the long and ſevere froſt in 1740, all died of hunger. Many other ſmall birds of paſſage, it is probable, periſhed by the ſame cauſe.

'Tis

'Tis very remarkable that ſome of theſe, which are birds of paſſage in England, have a fixed reſidence in ſome countries all the year round. A ſpecies of ſwallows, Herodotus mentions, reſides in Egypt the whole year. Proſper Alpinus aſſerts the ſame;* and Mr. Loten, late Governor of Ceylon, declares, that thoſe of Java never remove. Every other ſort we have heard of, except theſe, obſerve a periodical migration, or retreat. The ſwallows of Norway, North America, Kamſchatka, the temperate parts of Europe, of Aleppo, and Jamaica, all agree in this one particular.†

On the contrary, ſome birds, which never remove from this iſland, are migratory in other countries. Larks, which are ſettled inhabitants here, are birds of paſſage in the north, deſerting that region in winter, to return with the returning ſpring. The chaffinch, that conſtantly reſides here, appears in Carolina and Virginia in the winter, but goes in ſummer to breed in the more northern countries.

Before we cloſe this department, we ſhall ſay ſomething of the larger birds of paſſage; viz. the cuckow, the turtle, the ſtork, the crane, the goat-ſucker, &c.

Of this tribe, the *cuckow* is the moſt remarkable. Early in the ſpring it diſcovers itſelf in our country by its well-known voice; at the approach of winter it totally diſappears, and is heard of no more till the vernal ſeaſon enſuing. Many are the conjectures how it preſerves itſelf in the winter; ſome ſay that it hides itſelf in our iſland, and continues in a dormant ſtate; and it has been aſſerted, that cuckows have been diſcovered in the midſt of winter, not only in holes of trees, but under ground in ſandy ſoils, alſo in the caverns of

* Hiſtory of Egypt, 1, 198.

† Conſult Pontoppidan's Hiſtory of Norway, vol. 2, page 98; Cateſby's Hiſtory of Carolina, vol. 1, page 51; the Hiſtory of Kamſchatka, page 162; Ruſſel's Hiſtory of Aleppo, page 70; and the Philoſoph. Tranſactions, No. 361.

rocks,

rocks, antique buildings, old walls, out-houſes, and the like. Nay, ſome pretend that they have been found in ſtacks of wheat, hay, &c. dead to appearance; but, after carrying them to a fire, they have revived,* and ſung with as much vigour as in the midſt of ſpring. By the ancients it was a received notion, that there is a ſecret ſympathy between this bird and the kite, and that he takes a cuckow under his protection, and even wafts him on his ſhoulders to diſtant climates. There are many other fables of this bird, but it would be impertinent to recite them, as they are not only repugnant to common ſenſe, but ſo anomalous, unwarrantable, and incredible, that they are quite unworthy the reader's attention.

Doubtleſs the cuckows, like ſwallows, &c. ſhift their habitation at the commencement of winter, and ſeek a country more ſuitable to their nature and conſtitutions. Probably their winter reſidence is in the ſouthern climes, or, poſſibly, as they have great ſtrength of flight, they may fly ſo far as Egypt or Ethiopia. If quails, which have ſhort wings, can fly quite over the Mediterranean, ſure Africa cannot be too diſtant a migration for theſe birds.

The cuckow makes the ſhorteſt ſtay† of any of our

* I have heard it affirmed, that an old hollow tree being cut down in a certain village in Wiltſhire, and laid on the fire, a cuckow, revived by the warmth, jumped out of the fuel, and began repeating its uſual note with great energy, to the admiration of the beholders: but I think this relation is too extravagant to deſerve our credit.

† Though the generality of the cuckow tribe diſappear at the latter end of June, ſome of the young are uſually ſeen in England in July, Auguſt, and even in September. It is therefore certain the latter brood do not migrate with the reſt, as many of them are not fledged, nor even hatched, when the old ones leave this country. How theſe inexperienced animals, who never ſtrayed from their native diſtrict, and who are perfectly unacquainted with every other region, ſhould diſcover the climate where the preceding emigrants have taken their abode, is a queſtion not eaſily to be ſolved. Guided undoubtedly they are by a kind of inſtinct, implanted in them by the great Author of Nature.

ſummer gueſts. From the time of its arrival to its departure, is only three months. No reaſon can be aſſigned why they leave us ſo early; it cannot be owing to a ſcarcity of food, nor can the frigidity of the weather compel it to move, it being very warm when it departs. Likely, a certain temperament of the atmoſphere, or a perceptible tranſition in their own bodies, may force them away, and prompt them to change their climate, in order to obtain what is more agreeable to them. Mr. Stillingfleet ſaith, the cuckow is compelled here by that conſtitution of air, which cauſes the fig tree to put forth its leaves. From the coincidence of the firſt appearance of ſummer birds of paſſage, this ingenious writer would eſtabliſh a natural calendar in our rural œconomy.*

Pennant is of opinion there is only a partial migration of theſe birds; he thinks a few of them take ſhelter in hollow trees, and lie torpid, till animated by unuſual warm weather. He ſays, he has two evidences of their being heard to ſing as early as February, but they were not heard long; chilled again, he ſuppoſes, into torpidity.

I cannot coincide with him: 'tis indiſputable there are inſtances of cuckows appearing in winter, but they are very rare and uncommon; and we may reaſonably ſuppoſe, that when a ſtraggler is ſeen in that ſevere ſeaſon, that it was either *bewildered* in its paſſage, or was hatched *too late* to take its flight with the reſt of the genus.

The *turtle-dove* (which we are next to conſider) comes hither in the ſpring, and goes away again in autumn. Their winter retreat is in the warm ſouthern climes, where they breed. Theſe birds arrive here in vaſt flocks; they go off in the ſame manner, and few or none remain in our northern countries during the winter, unleſs they are kept in aviaries or cages. It is

* Calendar of Flora, vide preface throughout.

ſuppoſed

ſuppoſed many of theſe ſpend the dreary ſeaſon in Egypt, and other parts of Africa.

Storks viſit our iſland in the ſpring, and go off again early in the autumnal ſeaſon. Naturaliſts are at a loſs where theſe birds go when they quit this climate; but it is pretty certain they ſteer their courſe toward the ſouthern countries. The periodical journies of the ſtork were taken notice of by the Antideluvians; and indeed, almoſt every naturaliſt of antiquity gives an account of their conſtant and regular migrations. Theſe birds no not all fly to the ſame country; and it is very remarkable they always take their flight by night. Belon informs us they are common in the winter time in Egypt, and other parts of Africa. Some ſay, that when they go away, the ſtork, which arrives laſt to the place of rendezvous, is killed on the ſpot; but, in all probability, this aſſertion is not grounded on fact, but is only the ſpawn of ſuperſtitious credulity.

When they leave Europe, they gather together in vaſt flocks. Being thus aſſembled, they will continue for ſome days in the ſame place, chattering and making a great noiſe, as if debating of the method to proceed; then being ſilent for ſome time, after a ſignal given, they all fly off, fetch many great rounds near the earth, and then gradually aſcend, ſtill mounting higher and higher, till at length the great cloud, which a few moments ago darkened the atmoſphere, is quite imperceptible. The celebrated Thomſon has given ſuch a fine and beautiful deſcription of the paſſage of the ſtorks, that we cannot withhold it from our readers.

Where the Rhine loſes his majeſtic force
In Belgian plains, won from the raging deep,
By diligence amazing, and the ſtrong
Unconquerable hand of liberty,
The ſtork aſſembly meets: for many a day
Conſulting deep and various, e're they take
Their arduous voyage thro' the liquid ſky.

And now their rout deſign'd, their leaders choſe,
Their tribes adjuſted, clean'd their vigorous wings,
And many a circle, many a ſhort eſſay
Wheel'd round and round, in congregation full
The figur'd flight aſcends; and riding high,
Th' aerial billows mixes with the clouds.

SEASONS, Autumn, l. 859.

The *crane* ſtays here ſomewhat longer than the ſtork, ſeldom deſerting Europe till the middle of September. Theſe birds are found in Lincolnſhire, and many other parts of England; but the cold artic region is their favourite abode. They come down into the more ſouthern parts of Europe, rather as viſitants than inhabitants, yet it is not eaſily aſcertained how they portion out their time to the different parts of the world. Like ſtorks, they migrate in immenſe flocks, and return in like manner. In Orleans, in France, October 1753, there were ſeveral thouſands of them ſeen paſſing from the north to the ſouth. Geſner aſſures us, that the cranes uſually began to quit Germany from about the 11th of September to the 17th of October; from thence they were ſeen ſteering ſouthward in numbers incredible. Redi informs us they arrive in Tuſcany a ſhort time after. In the ſeverity of winter it is not unlikely but they may advance ſouthward, ſtill nearer the line.

When they migrate, they ſoar to an imperceptible height, and obſerve great regularity in their flight. Milton, in his Paradiſe Loſt, book 7, l. 426, has elegantly expreſſed this circumſtance.

Thus they, rang'd in figure, wedge their way,
Intelligent of ſeaſons, and ſet forth
Their airy caravan high over ſeas
Flying, and over lands with mutual wing
Eaſing their flight, ſo ſteers the prudent crane
Her annual voyage, borne on winds; the air
Floats as they paſs, fann'd with unnumber'd plumes.

The

The arrival of theſe birds of paſſage is wonderfully regular. Jedi tells us, that in the fields near Piſa, in Italy, they appeared on the 20th of February, in 1667; on the 24th, in 1668; the 17th, in 1669; and the 15th, in 1670.

The *goatſucker*, by ſome called *caprimulgus*, is the lateſt ſummer emigrant we have. It does not reach us till the middle of May, and invariably retires before the latter end of Auguſt. In ſummer it is an inhabitant of Derbyſhire, Shropſhire, Yorkſhire, and Wiltſhire. It conſtantly flies by night, and is ſuppoſed, by Klein and many others, to be a ſpecies of ſwallow. This bird's winter reſidence is in ſome of the ſouthern countries. As it diſappears about the ſame time as the ſwift, it is probable it flies to the ſame region.

The *quail* is a regular emigrant, though it has been conjectured that it ſleeps during the winter in ſome parts of Great-Britain. Annually they are ſeen croſſing the Mediterranean in numbers immenſe. When they forſake this iſland, like cranes, they go off in the night, and uſually fly in pairs. The quail is ſo tender a bird, that it cannot bear cold countries.

It appears ſurpriſing, that quails, which are ſo ill adapted for long flights, ſhould attempt to fly over the wide extenſive ocean; but it is certain they do. Was it not confirmed by undeniable atteſtations, it is ſo very extraordinary, that we could not credit it. Bellonius aſſures us, that when he went from Rhodes to Alexandria, in autumn, ſeveral quails, flying from the north to the ſouth, were taken in his ſhip. Sailing at ſpring the contrary way, from ſouth to the north, he obſerved them on their return; when many of them were taken in the ſame manner. This account coincides with many others to the ſame purpoſe. The quail generally chooſes a north wind for theſe nocturnal adventures, the ſouth being very detrimental, as it retards their flight, by moiſtening their plumage.

As

As we have now diſtinctly enumerated the whole tribe of the feathered nations which viſit us in the ſpring, and deſert us at the approach of winter; as we have marked the ſtated times of their going and coming, followed them in their aerial journies, and traced them to their reſpective regions, we ſhall now turn our view to our *winter emigrants*, and endeavour to ſatisfy the curioſity of the reader, by ſhewing the retreats of the fieldfare, the red-wing, the woodcock, ſnipe, &c. and leading him to thoſe bleak and frozen climes, where they conſtantly and regularly emigrate.

OF

OF WINTER BIRDS OF PASSAGE.

WHEN theſe birds leave Europe, they retire to the northern parts of the continent, where they breed, and reſide during the ſummer months. At the return of winter they are driven ſoutherly in queſt of food, of which they are deprived by the ice and ſnow in thoſe frigid regions.

Immenſe flocks of *fieldfares* and *red-wings* appear here about the middle of October, and leave us in the ſpring. It is imagined that thoſe which viſit our iſland have taken their flight from Sweden, Norway, and the neighbouring countries.

Theſe birds are tempted here by the berries * which are found in great plenty in moſt parts of England, and which make a principal part of their food. Some of this tribe, however, are in ſome climates conſtant inhabitants, and never ſhift their quarters; thoſe, for inſtance, of Pruſſia and Ruſſia not only breed, but winter in thoſe countries.

A convincing proof that theſe winter emigrants come here for food, is, becauſe the numbers that appear annually are very diſproportionate. In ſome ſeaſons, when there is a great produce of hawthorn berries, every buſh ſwarms with them; when there is a ſcarcity, it is remarked, very few of theſe birds are to be ſeen in this country. By this we may ſuppoſe, that they wander from country to country, and ſettle in that only where they find a good ſtock of food.

The

The fieldfare and red-wing (the Royſton crow excepted) are the only birds of paſſage that conſtantly and unanimouſly leave us at the commencement of winter. And it is very extraordinary that theſe ſhould leave us, there being no abſolute neceſſity for their migration, either on the ſcore of proviſion or climate. The place of their retirement is Sweden, and other cold countries, in this latitude; here they annually breed and paſs their ſummers. When they ſteer their courſe back to Great-Britain, they company with red-wings, and make ſhort flights, paſſing from hedge to hedge, and country to country, feeding as they go, till at length they reach our iſland. It is certain they ſpend the ſummers in Norway, Sweden, and the adjacent countries, becauſe they are yearly ſeen paſſing and repaſſing from and to the northern parts in great numbers.

In the ſpring, when they quit Europe, conſcious of the ſuperior coldneſs of the boreal climes, they do not haſten thither immediately, but ſail gradually on through the more moderate countries of Germany and Poland. When the ſeverity of the cold is abated, and proper food may be met with for their ſubſiſtence, they journey on more expeditiouſly, and arrive at the northern regions. Here they diſperſe themſelves over the face of the landſcape, and remain in peace and plenty, till they are driven back again by the rigorous ſeverity of the ſeaſon.

The coming of theſe birds * may then be pretty well accounted for. Impelled by an innate principle of ſelf-preſervation, they go northward or ſouthward in one ſimple tract. When their food fails them here, they

* The fieldfare and red-wing were the Turdi of the Romans, which they fattened with figs and bread mixt together. Varro tells us that they were birds of paſſage, common in autumn, and departing in the ſpring. In thoſe times they muſt have been exceedingly plenty, for they were kept by thouſands in their fattening aviaries.——Kramer Elench. 361. Varro, lib. 3, c. 5.

depart

depart elſewhere, and return again as ſoon as it is renewed. They do not arrive in France till the beginning of December.

We cannot pretend to determine why theſe birds leave us in the ſpring; nor do we find that any other naturaliſt can aſſign any juſt reaſon for their departure. At the time of their migration one would naturally imagine they would continue, and build their neſts with us, as there is no obſtacle with reſpect to food and climate. It is certain, however, that the majority, if not the whole tribe, depart to other countries for this purpoſe.

Perhaps it may be ſuggeſted that they do not leave us till the haws and other berries are all gone, and they are under a neceſſity to go in queſt of ſubſiſtence elſewhere. This, however, is of no importance, unleſs it can be proved that the northern climes, to which they retire, afford them a freſh ſupply; which, in all probability, they cannot. Poſſibly, therefore, the food of theſe birds in ſummer is not the ſame as in the winter. But if we allow *this* conjecture, it is very ineffectual in ſolving the queſtion, *Why do they leave us?* Undoubtedly they might, in our country, not only find proviſion in greater plenty, but much ſooner, and with more facility, than in thoſe frigid regions to which they remove.

We muſt, therefore, acknowledge, that we cannot thoroughly inveſtigate this ſecret of nature. Providence (as a learned naturaliſt remarks) has created a great variety of birds, and other animals, whoſe conſtitutions and inclinations are adapted to the different degrees of heat and cold in the ſeveral climates of the world; he has alſo given them proper appetites for the productions of thoſe countries, (whoſe temperature is agreeable with their natures) as well as knowledge and abilities to find them out. From whence we may conclude, that the birds before-mentioned could no more ſubſiſt in the ſultry climes of the Molucca iſlands, than birds

of Paradiſe could in the frozen regions of Sweden and Lapland.

We ſhall now juſt mention other migratory birds which diſappear in the ſpring, and endeavour to watch them to thoſe abodes to which they annually reſort.

The cold northern ſituations are the general ſummer rendezvous of *woodcocks*. Norway, Sweden, Lapland, and the neighbouring countries, are the places where they migrate to when they deſert our iſland. When the cold rages there with great ſeverity, they take their flight to more moderate climes, where the earth is open, penetrable, and adapted to their way of feeding. They appear among us about the middle of October; and diſappear in February, or the beginning of March. A few of them have been known to breed here.*

Woodcocks are frequently ſeen in their migrations, paſſing to the north in pairs. Stragglers are ſometimes found ſo wearied with their journey, that they are unable to proceed. A learned writer informs us, on the authority of Mr. Thomas Travers, of Cornwall, that the mariners of a ſhip, which was farther from land than any birds uſed to be found, diſcovered a bird hovering over them. When they firſt ſaw it, it ſeemed among the clouds, and was but juſt diſcernible; however, it gradually deſcended, took ſeveral circuits round the veſſel, and at length lighted on the deck. The bird was ſo wearied and fatigued, that they took it off with their hands, and found it was a woodcock. Likely,

* We are informed that in Caſe wood, about two miles from Tunbridge, a few build almoſt annually; the young having been ſhot in the beginning of Auguſt, and were as healthy and big as they are with us in the winter, but not ſo well taſted. A female with egg was killed in that neighbourhood in April; the egg was as big as that of a pigeon. They are remarkably tame during incubation: A perſon who diſcovered one ſitting, has often ſtood over it, and even ſtroaked it, notwithſtanding it hatched the young, and at the proper ſeaſon diſappeared with them.

the

the poor creature was ſteering northward, in order to follow his feathered mates; but loſt his way in its paſſage, and by the force of winds, or a ſtorm, was driven from the true aerial tract. Inſtances of this kind often occur. Voyagers of veracity, whom I cannot but credit, have informed me, that they have ſeen ſwallows and other birds light on the ſhips ſometimes, when they have been very remote from any ſhore. A ſtronger proof of the *real migration* of birds cannot be given.

'Tis very remarkable, that when the woodcock firſt arrives here, the taſte of its fleſh is quite different from what it is afterwards; it is very white, ſhort, and tender, and ſeems to have no blood in it, but after it has been in this country a conſiderable time, it becomes more tough, ſtringy, and fibrous, like that of domeſtic fowls. If you ſhoot a cock juſt before their departure, it bleeds plentifully, whereas at the beginning of winter it ſcarce bleeds at all. From this it ſeems evident, that in thoſe countries where they have their ſummer reſidence, they have a different kind of nouriſhment from what they have here. Probably their luxuriant and ſucculent kind of nouriſhment, which they meet with among us, prepares them for breeding in thoſe countries where they retire, with the companions of their choice.

In the winter great numbers of woodcocks are ſeen as far ſouth as Smyrna and Aleppo.* It has been alſo aſſerted, that ſome of them have appeared as far ſouth as Egypt. In North-America and Newfoundland, woodcocks are unknown.

The *ſnipe* appears about the ſame time as the preceding. A few of them reſide with us the whole year, but the generality of them deſert with the woodcocks. Like them they have alſo their ſummer quarters in the north, and breed in the moiſt woods of Sweden, and other cold countries. Thoſe which continue here

* Ruſſel's Hiſtory of Aleppo, 64.

make their neſts in our low moors and marſhes, and lay four or five eggs.*

The *hooded* or *Royſton crow* come and go about the ſame time as the woodcock. Their winter abode is in Sweden and Auſtria, where they breed. In Scotland, in many parts of the Hebrides, the Orkneys, and Shetlands, they are found in great plenty, where they breed and reſide the whole year. Thoſe which migrate here at the commencement of winter, are ſuppoſed to be inhabitants of the northern countries.

Many have affirmed that theſe are not migratory, but we are confident they are. Belon, Geſner, and Aldrovandus agree, that it is a bird of paſſage in their reſpective countries. It is, however, ſomewhat remarkable, that this ſpecies ſhould leave us, whoſe food is ſuch, that it may be found at all ſeaſons in this country.

The *dotterel* is ſaid to be a bird of paſſage, but it is only a wanderer, ſhifting its habitation in the vernal and autumnal ſeaſons, from the marſhes to hilly ſituations. At thoſe times they are very common on the Wiltſhire and Berkſhire downs. The green plover, the long-legged plover, and the ſanderling, which are

* Thoſe who are deſirous of being more particularly acquainted with the natural hiſtory of the ſnipe, and other Britiſh birds, ſhould conſult a work, entitled, *A New and Complete Natural Hiſtory of Britiſh Birds*, which, with great labour and expence, we have compiled. This performance is not yet publiſhed, but it is now going to the preſs, and will appear in a ſhort time. There the Ornithologiſt will find the ſubject diſcuſſed as it ought, and all the errors of former writers corrected. There, we flatter ourſelves, he will meet with a fund of knowledge, entertainment, curioſity, novelty, and inſtruction, infinitely ſuperior to what other works on this topic can boaſt of. A curious, particular, and accurate account is given of every bird found in Great-Britain, whether aquatic, migratory, or local; and every thing relative to the nature of birds in general is treated of in as entertaining a manner as the nature of the ſubject would allow. In ſhort, we think we may ſtile it, *A New and Complete Syſtem of Britiſh Ornithology*. See more of the particulars of this work in the Ladies Magazine for October, 1779; page 528.

ſeen

ſeen here in winter, and are ſuppoſed to be birds of paſſage, are only wanderers, as they are known to breed in ſome parts of England. 'Tis true they are migratory, i. e. they journey from country to country, but never totally leave this iſland. Curlews and lapwings are in the ſame predicament.

ACCOUNT of thoſe BIRDS

Which are not Regular EMIGRANTS,

But only ſhift their Quarters at certain Seaſons of the Year.

BIRDS of paſſage are generally underſtood to be thoſe which are compelled annually to take long and diſtant excurſions; but, in reality, almoſt every Britiſh bird is a bird of paſſage, though they may not journey to places ſo remote. Small birds uſually remove at ſome ſeaſons of the year, either from one country or diſtrict to another, or towards the ſhore, from the more inland provinces.

There are two periods in the year when theſe little animals change their haunts, the one in the ſpring, the other in the autumn. Why they obſerve, with ſuch punctuality, theſe occaſional migrations, we do not know; food perhaps may be deficient in thoſe ſeaſons, which may ſtimulate them to change their abode. When they begin their march, they aſſemble in vaſt flocks, and generally ſteer their courſe againſt the wind, if there be any ſtirring. Thoſe flights of linnets which viſit us in the ſpring are only wanderers, and belong to ſome other country.

In

In ſpring and autumn many perſons obtain a livelihood by taking theſe birds with nets in their paſſage. Autumn is the principal ſeaſon when the fowler employs his art to take theſe wanderers. His nets are moſt ingeniouſly conſtructed, and ſo contrived, as from a flat poſition to riſe on each ſide, and clap over the birds that happen to alight between them. He has certain call-birds, generally conſiſting of five or ſix linnets, two greenfinches, two goldfinches, a bullfinch, a wood-lark, a red-pole, a tit-lark, and a yellow-hammer; theſe are put in cages at a little diſtance from the nets. He has alſo what are termed flur-birds, placed upon a moveable perch, which he can raiſe when he pleaſes by means of a ſtring, which he lifts gently up and down as the wild bird approaches. But this is inſufficient to call the wild bird down; it muſt, before it is captivated, be called by one of the ſmall birds in the cages; on hearing the call of its feathered mates, the wild bird is ſtopped in its moſt rapid flight, and will immediately light within the ſnare. The bird-catcher inſtantly pulls a ſtring, and the nets clap directly down on the unfortunate captive. Such an alluring power have the call-birds, that ſometimes if half the flock only are decoyed, the others will unſuſpectingly light between the nets, and become captives with their companions.

'Tis not eaſy to account for the nature of this call; perhaps it may be an invitation to food, a prelude to courtſhip, or a challenge to combat. When taken, the males are made captives for ſinging, and the females are killed to be ſerved up to the tables of the delicate, or the rich. For a more ſatisfactory account of this matter, ſee *A New and Complete Natural Hiſtory of Britiſh Birds*, before mentioned.

REFLEC-

REFLECTIONS

ON THAT

Truly admirable and wonderful INSTINCT,

THE

Annual Migration of Birds.

THE periodical migration of the feathered tribe, and their regular returns, are ſo extraordinary and unaccountable, ſo amazing and remarkable, that it cannot but excite our admiration, and fill us with aſtoniſhment! A ſtranger phœnomenon we never heard of in all the material world! In all the boundleſs works of nature, nothing is more ſurpriſing, or has more excited the curioſity of man! Traverſe the utmoſt limits of this terraqueous globe—explore the ſecret receſſes of its inmoſt bowels—ſearch the fluid realms of the watry world—pry with ſkilful eye into the whole chain of finny inhabitants that ſkim the fathomleſs deep—examine with niceſt ſcrutiny the immenſe tribes of animals that walk the earth, and drink the golden day; extend your range—wing the aerial regions—ſcale the immeaſurable arch—ſurvey the ſun and moon, and all the countleſs globes that roll above—and in all the grand tour, in your long, long excurſion, in ſhort, in the whole ſyſtem of created things, what will you diſcover more wonderful—more curious—or more amazing!—Without any compaſs to regulate their courſe, or any chart to make obſervations in their voyage, theſe little animals ſail over the ocean, and at length

length arrive ſafe at the deſired ſhore.—Not only arrive ſafe, but, what is ſtill more extraordinary, always find the readieſt way, and the ſhorteſt cut.—How admirable!—Surely we cannot but cry out—"Wonderful are thy works, O Lord!—thy ways are incomprehenſible—they are paſt finding out!"

"The ſtork in the heavens knoweth her appointed times; and the turtle, the crane, and the ſwallow obſerve the time of their coming."* All of them have their ſtated periods, which they duly and punctually obſerve. Even the young of theſe birds perceive how abſolutely neceſſary it is to forſake the land of their nativity, and travel in queſt of milder climes.† Some birds undertake journies that might intimidate even human perſeverance. In ſpring the quails fly from the remote parts of Africa to European climes. After continuing with us the ſummer, they ſteer their flight back again to enjoy the temperate air of Egypt. Swallows launch quite over the Atlantic ocean, and return again the ſame way, the enſuing ſpring. The time of their going and coming is not the ſame with every ſpecies; ſome are waiting for the winter, and others for the ſpring. Some move off in ſummer, and others again in autumn.

When the migration ſeaſon approaches, we obſerve birds not only to aſſemble in families, to incorporate in troops, but, previous to their long and diſtant journey, exerciſing themſelves by taking long flights, &c.

* Jeremiah 8, 7.

† The deſire of changing climate is very apparent in captive birds, and ſhews itſelf by the greateſt anxiety and uneaſineſs imaginable. Indeed, it is one of the ſtrongeſt affections of the birds inſtinct. Any one who keeps a bird of the migratory kind, will obſerve, that at the ſeaſon of the year when thoſe of the ſame tribe depart, the little captive will ſhew a great deſire of being releaſed; he will be inceſſantly making efforts to ſet himſelf at liberty, and perhaps occaſion his death by his hard ſtruggles to get looſe. At other times he will be lively and chearful, tranquil and eaſy, and will remain quiet and contented in his priſon.

The

The circumſtances of theſe migrations are various in different ſpecies. All birds of paſſage do not incorporate in troops; many ſet out ſingly, many with their females and families, and many march in ſmall detachments. An innate inſtinct prompts them to remove at their reſpective ſeaſons. As ſoon as proviſion fails them, or heat or cold incommodes them, they aſſemble* together, bring about them their young, and communicate to them their intention of changing climate. In what manner they do this—who convenes the aſſembly—what debates ariſe—or how they communicate the reſolution taken—I will not pretend to determine. 'Tis indiſputable not one of them deſerts till the undertaking is fixed, and the proclamation has been publiſhed. Not a ſingle loiterer is to be ſeen when the troops are preparing for their decampment, nor a ſingle ſtraggler to be found when they have once begun their march. Thus equipped, all unanimouſly begin their long aerial voyage. Over kingdoms and continents, hills and vales, cities, towns, villages, fields, deſarts, and wide capacious ſeas, they wing their way, "by the liquid air up borne."—Having finiſhed their journey through the land, their wings become a kind of ſails,† and they launch, though not into, yet over the ocean.‡ In a few weeks they arrive at the deſired country, where they reſide till the balmy gales of the ſpring invite them to return again.

How aſtoniſhing that ſuch irrational and inexperienced animals ſhould be able to perform ſuch long journies!—that they ſhould know the exact time when to

* The reaſon why migratory birds aſſemble in flocks at the time of their departure, is, becauſe by this augmentation of troops, they find themſelves more capable of reſiſting their enemies.

† Remigio Alarum. VIRGIL.

‡ Moſt of our ſummer emigrants fly over the ſeas in their paſſage to diſtant countries. The ſwallows and martins ſteer their courſe over the Atlantic ocean. The numbers of birds that are

to go—know whither to ſteer,* and when to return. Certain it is, that birds are actuated by a peculiar *inſtinct*, implanted in them by the GREAT CREATOR OF ALL WORLDS—THE DIVINE OMNIPOTENT GOD. For, as Ariſtotle juſtly obſerves, they act not by art, neither do they enquire or deliberate about what they do, and yet they perform all their undertakings with unerring judgment, and inimitable ſkill.

What, ſaith a learned Naturaliſt, but the great Creator's inſtinct, ſhould induce an unthinking, irrational bird, not only to venture over vaſt tracts of land, but even to launch over wide extenſive ſeas. It cannot be ſuppoſed that they have any knowledge of the way, or any perception of diſtant places. Or ſhould it be admitted that theſe little wanderers, by their high aſcents into the atmoſphere, can deſcry acroſs the ſeas, and perceive the limits of the ocean, yet whoever told them? By what myſterious intelligence are they ſenſible that one land is more proper, one country better adapted to their conſtitutions, than another? That Britain (for inſtance) ſhould afford them better ac-

ſeen annually ſkimming the pure marble air, and wafting themſelves along above that mimenſe world of waters, are amazing.

Who can recount what tranſmigrations there
Are annual made? what nations come and go?
And how the living clouds on clouds ariſe?
Infinite wings! till all the plume-dark air,
And rude reſounding ſhore are one wild cry.

THOMSON'S AUTUMN.

* Quis non cum admiratione videat ordinem & politiam, peregrinantium avium in itinere, turmatum volantium, per longos terrarum & maris tractos abſque aqua marina?—Quis eas certum iter in aëris mutabili regione docuit? Quis præteritæ ſigna & futuræ viæ indicia? Quis eas ducit, nutrit, & vitæ neceſſaria miniſtrat? Quis inſulas & hoſpitia illa, in quibus victum reperiant, indicavit modumque ejuſmodi loci in peregrinationibus ſuis inveniendi? Hæc ſanè ſuperant hominum captum & induſtriam, qui non niſi longis experientiis, multis itinerariis, chartis geographicis, & æcus magneticæ beneficio,—ejuſmodi marium & terrarum tractus conficere tentant & audent. Lud. de Beaufort. Cos. div. ſect. 5.

commodations

commodations than Egypt, than the Canaries, Spain, or any of thoſe intermediate places, over which many of them probably fly.

Some are of opinion that all birds of paſſage are endued with ſuch an innate natural faculty, that they are ſuſceptible of the tranſitions of the atmoſpherical fluid, or the ſteams of the bodies where they reſide, the alteration, or deficiency of their uſual food, &c. and that the changes ariſing from one or more of theſe in the temperament of their own bodies, induce them to change their ſituations, in order to avoid what is offenſive, and obtain what is more agreeable to their nature and conſtitutions.—Mr. Derham is alſo of opinion, that the temperature of the air as to heat and cold, and their natural propenſity to breed their young, are great incentives to migration. But it is (continues he) a very odd inſtinct that they ſhould at all ſhift their quarters; that ſome certain ſpot is not to be found in all the terraqueous globe affording them convenient food and habitation all the year; either in the frigid climes, for ſuch as delight in the colder regions, or the hotter, for ſuch birds of paſſage that fly to us in ſummer.*

But not only birds, but divers ſpecies of fiſhes, have alſo their removes. River fiſh, for inſtance, as ſalmon, trout, &c. go up into the ſmaller brooks to breed; afterward they ſail back, and go down into the very mouths of rivers that empty themſelves into the ocean. Salmons annually aſcend up from the ſea to rivers four or five hundred miles diſtant, only to caſt their ſpawn, and ſecure it in banks of ſand. When the young are hatched, and excluded, by a wonderful and moſt ſurpriſing inſtinct, they return to them again. Young ſpawns having been marked, and caſt into the river, have gone down into the ſea, and returned again full grown, with their marks, in the ſame river. Great numbers of marine fiſh, as mullet, mackarel, herring,

* Derham's Phyſ. Theol. 347.

pilchard, &c. come in ſhoals at certain ſeaſons; but theſe having the capacious ocean to travel in, remove north and ſouth, either for the ſuperior warmth of the water, which is adapted to their conſtitutions, or for the plenty or agreeableneſs of the food ſuch waters in all probability produce.

Several ſorts of quadruped animals do alſo occaſionally migrate, and remove from place to place. Where they can have ſufficient covert, and plenty of food, thoſe ſituations are uſually preferred, and ſometimes they range immenſe tracts of land before they can find a ſpot proper for theſe purpoſes. Ferocious animals of the deſart, in order to ſatisfy the calls of hunger, have been known to travel into very diſtant countries. In very ſharp ſeaſons they do not take ſuch long excurſions; they then are compelled by neceſſity to approach nearer the vicinity of man; indeed keen hunger compels them: At this time the neighbourhood of Man (in thoſe regions where thoſe ſhaggy monſters reſide) dreadfully re-echo with their different roarings; they ſtun the midnight hours with their yellings, and always make choice of the nocturnal ſhades to carry on their depredations. Theſe circumſtances are beautifully expreſſed by the Pſalmiſt in his addreſs to the Deity:—Thou makeſt darkneſs, and it is night, wherein all the beaſts of the foreſt do creep forth. The ſun ariſeth, they gather themſelves together, and lay them down in their dens. O Lord! how manifold are thy works! in wiſdom haſt thou made them all, the earth is full of thy riches.*

Pardon me, Reader, for this digreſſion:—And as this ſubject of emigration is now concluding, permit me to apologize for the little errors which may occur in the preceding pages. Want of time and better mental abilities were two obſtacles which prevented me from making it more perfect. Critics will therefore cenſure, and Zoiluſes condemn; but I regard neither the

* Pſalm 104, v. 20, &c.

the one nor the other. Fearleſs of their malice and reſentment, careleſs and inattentive to their obſervations, unaffected with the ſhowers of arrows that they dart around me, I ſhall ſtand unmoved, unſhaken, undaunted, and look down on them and their remarks with contempt and diſdain.—To the candid, judicious Reader, I have alſo a word to ſay, and then I have done, which is,—let clemency plead for my errors, and good nature cover my faults;—pardon the miſtakes of the preſs, and forgive my blunders, for ſuch will unavoidably eſcape. Never ſince the degradation of man have mortals been free from them.—Patroniſers of literature, be favourable to my performances;—condemn not too haſtily my imperfect attempts;—and in return I will ſtimulate every nerve, and exert my utmoſt endeavours to render my papers worthy of your reception.

FINIS.